

中央大學物理學系

Department of Physics, National Central University



# Colloquium

## Unveiling the Connection between Fast Radio Bursts and Magnetars

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Date: 2024/04/09 (Tue)

Venue: S4-625

Time: 14:00-16:00

### Abstract

Fast radio bursts (FRBs) are one of the most puzzling astrophysical phenomena in this decade. Although numerous theoretical models have been proposed, the origins of FRBs remain unclear. Magnetars, a subclass of neutron stars characterized by their extremely strong magnetic fields and diverse X-ray phenomena, emerge as strong candidates for FRB generation. In this talk, I will cover the observational evidence linking FRBs to magnetars, especially our recent findings related to the FRB-emitting magnetar SGR 1935+2154. Thanks for high-cadence observations by NICER and NuSTAR observatories, we observed two spin-up glitches occurring roughly nine hours apart during an outburst. These glitches coincided with a mini outburst, a forest of X-ray bursts, rapid spectral changes, and an FRB. These observations suggest that rapid changes in rotation frequency may trigger these energetic phenomena, and provide insights for future observations.